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ESTIMATES COMMITTEE

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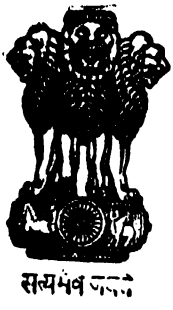
Tenth Report

1953-54

MINISTRY OF FOOD AND AGRICULTURE



LOK SABHA SECRETARIAT
NEW DELHI
September, 1954

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Members of the Estimates Committee, 1953-54

1. Shri M. Ananthasayanam Ayyangar, *Chairman.*
2. Shri Sarangadhar Das.
3. Shri Radhelal Vyas.
4. Shri Debeswar Sarmah.
5. Shri Nityanand Kanungo.
6. Pandit Balkrishna Sharma.
7. Shri Shivram Rango Rane.
8. Shri V. B. Gandhi.
9. Shri Upendranath Barman.
10. Shri R. Venkataraman.
11. Shri Balvantray Gopaljee Mehta.
12. Dr. Syed Mahmud.
13. Pandit Thakur Das Bhargava.
14. Shri C. P. Mathew.
15. Shri U. Srinivasa Malliah.
16. Shri Rayasam Seshagiri Rao.
17. Shri Ahmed Mohiuddin.
18. Shri Girraj Saran Singh.
19. Dr. Suresh Chandra.
20. Shri Mohan Lal Saksena.
21. Dr. Lanka Sundaram.
22. Shri Kadyala Gopala Rao.
23. Shri V. Muniswamy Avl. Thirukuralar.
24. Shri P. N. Rajabhoj.
25. Sardar Lal Singh.

SECRETARIAT

Shri M. N. Kaul—*Secretary.*
Shri S. L. Shakdher—*Joint Secretary.*
Shri V. Subramanian—*Deputy Secretary.*

INTRODUCTION

I the Chairman of the Estimates Committee having been authorised by the Committee to submit the Report on their behalf, resent this Tenth Report relating to the Ministry of Food and griculture.

2. The Estimates Committee in their Sixth and Seventh Reports ealt with the estimates relating to a number of Departments and ffices under the control of the Ministry of Food and Agriculture. he Committee continued further examination of the estimates of the attle-*cum*-Dairy Farm, Karnal, and the Indian Dairy Research nstitute, Bangalore, during the year 1953-54 and this Report embodies ie conclusions/recommendations of the Committee on these two rganisations as arrived at by them on the basis of the written aterial, the evidence tendered and an on-the-spot study of their orking made by some Members of the Committee.

II

CATTLE-*CUM*-DAIRY FARM, KARNAL

Introduction

3. Cattle breeding work has been carried on since 1798 in the Cattle-*cum*-Dairy Farm, Karnal. Originally a Military Dairy Farm, it was transferred to the late Imperial Department of Agriculture in 1923 and placed under the charge of the Imperial Dairy Expert, whose headquarters was then at Bangalore. From 1936, the Karnal Farm functioned as an experimental cattle-breeding sub-station under the Imperial Agricultural Research Institute, New Delhi. In 1950, a farm which had been opened in Jabalpore in 1946, was closed down and the cattle transferred to Karnal. On the 1st March, 1951, the Karnal Farm was reorganised as a Cattle-*cum*-Dairy Farm and placed under the direct control of the Ministry of Food and Agriculture. The entire herd of the famous Sahiwal breed, consisting of 350 heads of cattle which, till then, had been reared in the Indian Agricultural Research Institute, New Delhi, was, with the exception of 22 animals, transferred to Karnal. These 22 animals were retained in New Delhi for purposes of research and training.

Functions of the Farm

4. The Farm is at present essentially a commercial organisation. Little research work is being carried on there and the activities are limited to the supply of milk to the public, and the upgrading of local breeds by cross-breeding with pure-breed cattle such as the Sindhi, the Tharparkar and the Sahiwal.

5. A Key Village scheme is also being conducted in the Farm temporarily under the aegis of the Indian Council of Agricultural Research. The object of the scheme is to develop the cattle in villages round-about Karnal by removing or castrating the existing bulls and replacing them by the required number of superior bulls. The breeding work is being done both by natural methods with the bulls of the Farm and by artificial insemination. The scheme was started in November, 1951 and since then 1283 cattle have been inseminated by artificial methods and 168 by natural methods. The sphere of work extends to 11 villages round-about Karnal and the sanctioned grant for the scheme during 1951-52 was Rs. 20,610.

6. A rice cultivation scheme is also being conducted since June, 1952, over an area of 225 acres of farmland under the Grow More Food Campaign.

Establishment

7. The existing staff of the Farm in the Gazetted Cadre are a Superintendent, an Agricultural Officer and a Cattle Officer of whom the first is in Class I and the other two in Class II. The non-Gazetted establishment consists of 24 in Class III and 31 in Class IV. Further details of the categories of these staff are given in Appendix II.

Budget Estimates

8. The actual expenditure for 1952-53, the Revised Estimates for the year 1953-54 and the Budget estimates for 1954-55 in respect of the Farm are as given below :—

	Actual expenditure 1952-53	Revised estimates 1953-54	Budget estimates 1954-55
	Rs.	Rs.	Rs.
Pay of officers . . .	14,666	14,500	19,000
Pay of establishment.	42,016	41,500	48,500
Other charges	3,93,921	3,97,000	3,37,500
Total .	4,50,603	4,53,000	4,05,000

Transfer of Sindhi cattle from the Jabalpore Farm

9. In 1946 a Cattle Breeding Farm was started at Jabalpore for carrying out cross breeding experiments on cattle with a view to evolve (1) a cow with a high milk yield and (2) a dual-purpose animal with a higher degree of efficiency than at present. The expenditure on the Farm was estimated at Rs. 50,55,000 non-recurring over a period of five years, and Rs. 7,25,304 recurring annually. An area of over 3,000 acres of land was acquired for the Farm. The number of animals acquired (excluding calves) was about 400, of which 250 were brought to Jabalpore and 150 kept at New Delhi, Karnal and Bangalore before transferring to the Farm. Some 270 of these animals of the Sindhi and Tharparkar breed were purchased in Pakistan by an Officer who was specially sent to Karachi for this purpose. The average cost per animal including the cost of transport etc. came to Rs. 712. By 1950, the Farm had been developed to some extent and a total sum of more than Rs. 17 lakhs had been spent both on recurring and Capital account. In that year, however, it was decided, mainly on financial grounds, to abandon the Jabalpore Farm and transfer the entire cattle to Karnal and to lease out the land there. Accordingly the Farm was closed and the land was handed over to the Rehabilitation Ministry for the rehabilitation of refugees. The loss incurred in this scheme has not been worked out in detail, but should indeed be very heavy.

10. The Committee were also informed by the representative of the Ministry that another reason for abandoning this scheme was the unsuitability of the land for a farm of this nature as it became waterlogged. The land for growing fodder was also said to be insufficient. The Committee do not find these reasons very convincing. It is strange that the unsuitability of the land was discovered only in 1950—after a lapse of about three years. The scheme was started, after detailed examination and at a considerable outlay, to meet the essential requirements of animal husbandry in the country. If the place was unsuitable for setting up a farm, it is suprising that efforts should have been made to purchase cattle, although in small numbers, from Pakistan, for this Farm and then keeping them there without carrying out any experiments in cross-breeding, resulting in losses year after year. In winding up this Farm, besides the

financial loss involved, there has been a cessation also of a very useful line of experiment in cross-breeding of cattle. The Committee trust that greater care will be exercised in future by Government before embarking upon such schemes.

Transfer of Sahiwal cattle from the I.A.R.I., New Delhi

11. The Sahiwal breed of cattle was especially developed since 1904 in the then Imperial Agriculture Research Institute, Pusa, in Bihar. In 1936, the Institute was shifted to New Delhi and all the cattle were also transferred. Research in scientific breeding of this cattle was continued in Delhi. In 1951 the entire Sahiwal herd of 350, with the exception of about 22 animals, was transferred to the Karnal Farm. Prior to the transfer, useful research had been carried out on this cattle in Delhi and they were carefully reared. While at Delhi, the yield of milk per cow was as much as 22 lbs. per day; after the transfer, the yield has fallen to 15 lbs. per day. The yield during lactation period was also affected by the transfer, since formerly it was 13,200 lbs. of milk during one lactation period, whereas now it has fallen as low as 5,000 to 6,000 lbs. The Committee have noted that subsequent to the transfer, research on this cattle has not been carried on at Karnal. The Committee consider, therefore, that the transfer of these cattle was, as in the case of the transfer of the Sindhi breed from Jabalpore, ill-advised.

12. The Sindhi, the Tharparkar and the Sahiwal animals are now concentrated at Karnal. Some of these breeds have come from areas now in Pakistan and pure breed animals of this category are difficult to obtain in this country. The Committee consider that these breeds should be dispersed over various Centres so that they may be put to greater use. Moreover, in keeping them all in one locality, there is a potential danger that in the event of outbreak of an epidemic they may all be destroyed by disease.

13. If the Sahiwal breed could be retransferred to Delhi, greater attention could be devoted to them than is at present the case at Karnal. The receipts of the Institute at Delhi would also be considerably augmented. This aspect of the case has been examined by the Director of the Institute at Delhi. The Committee were informed that of the total number originally transferred to Karnal, 58 cows of the Sahiwal breed, together with the usual number of young stock, were available for retransfer to Delhi where they could be maintained with the existing facilities of land. The transfer would in the first year involve an expenditure of Rs. 20,000 on account of fodder, which was not at present readily available at the Farm in Delhi and this would, therefore, have to be obtained for the time being from the market. From the second year onwards, however, all the requisite fodder would be forthcoming from the Farm by proper rotation of crops. The Committee, therefore, recommend that such of the Sahiwal breed of cattle as can be transferred from Karnal to Delhi should be brought over and maintained in the Indian Agricultural Research Institute. Of the rest, some of them might be useful to the State Farms for breeding purposes. The Committee desire that this possibility should also be examined. The corresponding staff should also, therefore, be transferred from Karnal to Delhi.

14. The daily production of milk in the Karnal Farm is about 3,500 lbs., out of which nearly 3,000 lbs. are sent daily by rail for sale to the Indian Council of Agricultural Research, which purchases this milk at Rs. 21 per maund. It may be estimated that the cost of pasteurisation, transport, loss in transit, etc. of the milk is about Rs. 7 per maund and that the Karnal Farm receives, therefore, only Rs. 14 net on every maund of milk sold. With the transfer of the Sahiwal breed cattle from Karnal to Delhi, the milk yielded by them could be made available at a reduced rate of about Rs. 17 or so per maund.

Rearing of Tharparkar breed

15. The Karnal Farm being essentially concerned with the sale of milk and maintaining good quality breed of cattle, is not engaged in breeding research except as regards the Tharparkar breed. Trained and qualified staff is also not available in Karnal for such purposes.

16. The Tharparkar breed has all along been reared only in Karnal Farm. The Committee note that there has been considerable improvement in the quality of this breed during the years it has been maintained on the Farm. The daily milk yield has been raised from 5 lbs. in 1923 to 21·53 lbs. in 1946. As this particular breed is also a dual—purpose one, there is a great demand for it all over the country. The Committee, therefore, recommend that the Karnal Farm should continue to specialise in the breed of this variety. They desire that research work should be undertaken by the Farm in respect of the Sindhi breed also. Whatever scientific advice is necessary for this purpose should be made available to the Farm by the geneticists of the Indian Agricultural Research Institute at New Delhi.

Breeding Research

17. Research on cattle—breeding on scientific lines is carried on at present only in the Indian Dairy Research Institute at Bangalore and to some extent at the Institute at New Delhi. It is essential for the preservation of the cattle wealth of the country and for the maintenance of pedigree cattle both for breeding as well as for milking purposes that such work should be undertaken in a large number of Institutes distributed over various centres. The aim should be to maintain pure breeds of the type suitable for the regions concerned where they would be specially useful in upgrading local non-descript breeds. At the same time, research in the various branches of dairy economy could also be carried on with a view to improve the quality of milk products. Another advantage would be that larger quantities of milk would become available to the public from the farms attached to these Institutes.

Proper utilisation of farmland

18. One of the difficulties experienced in the Karnal Farm in the past was the paucity of grazing land and the insufficiency of fodder grown on the farmlands. The Farm has about 2,000 acres of land of which nearly 250 acres have been leased out to private parties, 150 are under the control of the I.A.R.I., and 50 under the sugarcane

sub-stations. Of the balance, only 600 acres are utilised for fodder purposes. The Committee were given to understand that for want of adequate irrigation facilities, the full fodder capacity of this land was not exploited in the past.

19. A sum of Rs. 1,70,000 was sanctioned in 1948 for sinking three tube-wells in the Farm. When the Committee visited the Farm on the 28th December, 1953, only one tube-well was functioning and the other two were incomplete. It appears that the two wells have since started functioning. The Committee regret to note that more than five years should have been taken for the completion of these tube-wells, especially when the land was lying fallow and water was badly required for the cultivation of fodder, thereby making it necessary for the Farm either to purchase fodder from the market or to curtail the cattle population.

20. While the construction of the tube-wells would provide sufficient irrigation facilities to bring the land lying fallow under cultivation, the Committee feel that proper attention has not been paid to the utilisation of the land to the best advantage of the Farm. Nearly 100 acres of the Farm are occupied by silo pits. Further, 12½ acres of fertile land are being used as paddock land, while normally, unproductive and inexpensive land is utilised for this purpose. The Committee consider that the maximum utility should be the guiding policy in the matter of land utilisation and, therefore, urge that greater attention be paid to this aspect.

Buffalo breeding

21. Buffalo milk is utilised to a large extent in the country to make up for the deficiency in the quantity of cows' milk. The fat content of buffalo milk is comparatively higher and consequently in some cases it is preferred to cows' milk. At present nearly 54 per cent. of the total milk production in the country is accounted for by buffalo milk. There is also considerable scope for export of buffaloes to foreign countries. The yield of good North Indian buffaloes easily amounts to as much as 10 to 15 seers of milk per day and in exceptional cases goes upto 20 seers. The Committee, therefore, consider that buffalo-breeding, undertaken on scientific lines, would help in solving the problem of milk and ghee supply to a large extent, especially in big cities. The Committee note, however, that there is very little research and scientific breeding of buffaloes in the various farms in the country. Some work of this nature, it is learnt, is carried on at Guntur on the State Government Farm. They, therefore, recommend that a buffalo-breeding farm and an experimental station may be attached to the Karnal Farm. The Committee understand that the Karnal Farm will be suitable for this purpose and can undertake such an additional activity.

Hariana breed in Hissar

22. The Committee note that 40,000 acres of land, a considerable portion whereof will have irrigational facilities, are available in Hissar (Punjab) and there are as many as 4,000 heads of cattle of the Hariana breed in the Hissar Farm, which is run by the State

Government. These dual-purpose cattle are in great demand. Considering the special variety of cattle bred in this Farm and the great potentialities of this Farm with a vast extent of land, the Committee suggest that the Central Government may also contribute to some extent towards the maintenance and development of this Farm.

Staff

23. The posts of Scientific Officers and Dairy Farm Specialists in the various Institutes and Farms of the Government of India are at present treated as separate entities. There is no organised cadre or regular lines of promotion. Consequently, occasions have arisen when vacancies in essential posts could not be filled for considerable lengths of time, and less qualified men have had to be appointed to important posts when posting of more experienced and highly qualified men would have been desirable. The Committee consider therefore, that proper cadres of Technical Officers with well-defined channels of promotion should be constituted early.

III

INDIAN DAIRY RESEARCH INSTITUTE, BANGALORE

Introduction

24. The Institute was opened on the 1st July 1923 by the transfer of one of the Military Farms in Bangalore to the control of the late Imperial Department of Agriculture. This followed the recommendations of the then Imperial Dairy Expert, who had proposed that some of the Military Dairy Farms should be handed over to him for utilisation for educational and research purposes on cattle breeding. The proposal had also been supported by the Inchcape Committee in 1923. The Institute was known as "The Imperial Institute of Animal Husbandry and Dairying" till 1939, when the Government of India created "The Imperial Dairy Institute" under the Director of Dairy Research, who was nominated the Head of the Imperial Dairy Department. In 1941 the name of the Institute was changed to that of "The Imperial Dairy Research Institute" and two Sections, *viz.*, the Dairy Chemistry and the Dairy Bacteriology Sections were added.

Functions and Organisation

25. The Institute is both an educational and a research organisation.

The Institute imparts training to four categories of students. The courses are (i) the two year Under-Graduate course, which leads to the Indian Dairy Diploma, (ii) a short 3 months' course in practical training, (iii) a Post-Graduate Honorary Research Worker's course and (iv) miscellaneous training to students of Veterinary, Agricultural and Medical Colleges, Officers of State Governments, etc. About 60 students receive training at a time in all these courses.

26. For research purposes, the Institute is divided into 4 main Sections, *viz.*, the Dairy Husbandry, the Dairy Technology, the Dairy Chemistry and the Dairy Bacteriology Sections. 12 Honorary Research Workers are admitted every year and are given facilities and guidance for carrying on research work on problems in Dairy Sciences.

Besides these Technical Sections, there is also a Central Administrative Office for purposes of administration, for compiling the budget and accounts, and for the clerical work incidental to the running of the Institute. The Administrative Office is divided into 4 Sections, *viz.* (i) Accounts, (ii) Establishment, (iii) General and (iv) Research and Education.

27. The Institute also offers technical advice to the trade, private individuals, public institutions, etc., as well as Departments of the

State Governments on various problems pertaining to cattle husbandry and dairy. Whenever required, the Institute participates in preparing schemes for the starting and efficient running of dairy farms, dairy factories, Co-operative Milk and Ghee Production Societies and Urban Milk Supply Schemes. It disseminates information in regard to the development of dairy science by participating in cattle shows, exhibitions, etc. and by co-operating in the activities of dairy associations. It also supplies the public with grass roots for propagating exotic varieties of fodder grasses. The pedigree cattle bred on the Farm are supplied to State Governments and to private breeders.

28. The Institute is a centre for Key Village work and runs several artificial insemination centres for purposes of upgrading the local village stock. It supplies starter cultures suitable for making *dahi*, butter and cheese to private individuals, the trade and educational and research institutions. It produces milk and manufactures various indigenous and other milk products, for demonstration to students and for use in research work. The surplus milk and milk products are sold to local hospitals and the general public.

29. For purposes of training the students, pedigree herds are maintained and the breeding, feeding and management of the cattle are conducted on scientific lines. Fodder is produced in the Farm and the students are trained in organised methods of collection, processing, transport and distribution of milk etc.

Assets and Cattle Stock

30. The book value of the assets of the Institute as on 1st April 1953 is as follows :—

	Rs.
1. Cattle	44,910
2. Lands	22,953
3. Buildings	2,19,947
4. Plant & Machinery	90,725
5. Laboratory equipment	56,017
Total	4,34,552

31. The cattle stock on the Farm is as follows :

Cows and Bulls:

Cows	169
Young stock	151
Stud Bulls	11
Bullocks	20
Total	351

Buffaloes:

Adult buffaloes	14
Young stock	22
Stud Bulls	2
Total	38
Grand Total	389

Budget Estimates

32. The actual expenditure for 1952-53, the revised estimates for 1953-54 and the budget estimates for 1954-55 in respect of this Institute are given below :—

	Actual Expenditure 1952-53	Revised estimates 1953-54	Budget estimates 1954-55
	Rs.	Rs.	Rs.
Pay of officers	1,16,582	1,29,100	1,25,000
Pay of establishment	1,25,362	1,62,600	1,56,000
Other charges	5,04,772	5,71,000	5,96,000*
	7,46,716	8,62,700	8,77,000
Dairy Research Scheme financed by the I.C A.R.	61,760	64,000	1,19,000

33. The Institute has large receipts on account of sales of dairy products etc. The actual receipts for 1952-53 and the revised estimate of the receipts relating to the year 1953-54 amount to Rs. 2,07,397 and Rs. 2,25,000 respectively.

Staff

34. A chart showing the different sections of the Institute and the number of staff in various categories working in them is given in Appendix III.

Research and Cattle Breeding Work

35. The details of the progress of research work carried on in the various Sections of the Institute during 1952-53 and the proposed technical programme of research for the year 1954-55 are given in Appendices IV and V respectively. A brief account of the research work carried out during the last five years is also given in Appendix VI.

36. The Committee were informed that the results of the research work carried out in the Institute were published in research magazines and that some practical demonstration of their applicability for industrial and trade purposes was also being arranged by the Institute. The Committee feel that the Central and State Governments

(*Including Rupees one lakh being the cost of equipment asked for under the Colombo Plan.)

do not seem to have so far made concentrated efforts to popularise the results of the research and would urge that, in future, attention of the Governments should be drawn to carry the fruits of the research work to the villages. The research workers should pay more attention to the practical problems of the trade and research should be more of an applied nature. Close contact should also be maintained with the trade. The Committee desire that an achievement audit should be conducted periodically, say every three years, with a view to assessing the practical utility to which the results of the research have been put.

37. The Committee learnt that the Institute was experiencing difficulties in obtaining equipment for conducting experiments. As an example, it was cited that the purchase of a condensing unit for the production of lactose costing Rs. 10,000 was sanctioned two years ago, but the Director-General of Supplies and Disposals had not yet supplied the equipment. The Committee feel that such difficulties faced by the Institute will interfere with its efficient working and urge that research work in the Institute should not be made to suffer or languish by slackness and red tape on the part of Government.

Produce of the Farm

38. The average daily milk yield in the Farm is about 2,300 lbs. The major portion of the milk is sold after pasteurisation and the rest is used for making cream, butter, ghee and cheese, as a part of the practical training of students and also for reseach purposes. The milk and milk products are sold to the Government Hospitals and the public of Bangalore after meeting the requirements of the staff of the Institute. The approximate annual production and disposal of milk is indicated below :

Items of Produce	Production	Sales	Feeding of calves
	lbs.	lbs.	lbs.
1. Milk	7,40,260	4,82,323	68,974
2. Cream	10,163	97	—
3. Butter	4,965	4,733	—
4. Cheese	2,352	1,349	—
5. Ghee	737	654	—
6. Separated Milk	93,264	—	87,550

39. The major item of expenditure in the Institute is cattle fodder. The Committee note that the cattle fodder obtained in the market costs Rs. 2 per 100 lbs. whereas the Institute can produce it at about As. 0-12-0 per 100 lbs. on its farm. The Institute, however, does not have enough land to produce its entire requirements of fodder. The land formerly available to the Institute was 87·47 acres which included 32·43 acres on lease at Bommanpalli, six miles away, where dry stock was maintained. Besides this, an area of 488 acres had also been placed at the disposal of the Institute by the Defence Ministry. The Institute has now been compelled to return the leased land of 32·43 acres as well as the Defence Ministry's land, with the result that it is left

with only 50 acres for its dairy farming activities. The expenditure of the Institute on fodder has consequently increased considerably. The Committee consider that efforts should be made to make up the loss in receipts by other activities. In the opinion of the Committee, this should, to some extent, be possible if the full capacity of the plant for the purpose of processing milk is utilised by making arrangements for getting the milk produced around the Institute, through co-operative societies, and processing it at the Institute.

Shifting of the Institute

40. The Committee learn that owing to the acute shortage of land in Bangalore, there is at present a proposal to shift the Institute to some other State where sufficient land and grazing facilities are available. At present, the requirements of the Institute are 1,000 acres, of which 300 should be under perennial irrigation to produce green fodder and 300 acres for grazing facilities. The Committee were informed that a Committee had been appointed by the Government of India to find a suitable place with requisite facilities where the Institute could be shifted and that various State Governments had been addressed by them for this purpose.

41. The Committee consider it inadvisable to shift this Institute to some other place. The Institute has rendered very good service in the southern districts and has specialised knowledge of the cattle breeds peculiar to that region. Shifting of the Institute would, therefore, create a void in that region where it has been doing useful service and maintaining contacts; besides, it might be a handicap to the efficient working of the Institute in the new place where it has to establish fresh contacts. The Committee are not fully convinced of the reasons for transferring the Institute from Bangalore. On the other hand, they feel that the place is well suited for the establishment of a Central Research Institute. Lack of adequate farmland is, in the opinion of the Committee, not a valid reason for shifting the Institute. They recommend that the area of 488 acres surrendered by the Institute to the Military authorities should be restored to it. Further, the Mysore Government should be approached for leasing out some land for the Institute either in its immediate vicinity or within a radius of 10 to 15 miles around.

Training of Students

42. In the training of students specialising in dairy farming, the Institute has been discharging a very useful and necessary function. It is at present the only Institute of its kind in the country. The Committee consider that the number of students undergoing training in the various courses provided in the Institute should be increased to at least 150 per year, and that all the necessary additional accommodation, furniture, laboratory equipment, etc., should be provided. Only the cattle breeding activities of the Institute are handicapped for want of adequate land at Bangalore. Even if it is necessary to transfer these activities to some other place, the Committee do not see why the Institute should altogether cease to train students in dairy farming at Bangalore. The Committee were informed that a scheme was at present under consideration of the Government for the establishment of an expanded Dairy Institute somewhere

near Delhi with provision for Dairy Science Degree courses. Even if this scheme is put into effect, the Committee do not see why the Institute at Bangalore should not continue to cater to the requirements of the Southern Districts in such of the courses as are now being conducted, with such modifications as may be necessitated by the restricted resources of the land etc.

Research Institutes

43. The facilities available at present for research work in cattle breeding and dairying in the country are very meagre and the Committee feel that there is a great need for further development in this field. Such research work is of vital national importance and should be undertaken all over the country. The Committee recommend that Research Institutes similar to the Bangalore Institute should be opened in various regions in the country and that for this purpose, the country may be divided into the following four regions according to the climatic and other conditions that govern the breeding of cattle of that area :

(a) Heavy rainfall areas comprising of Orissa, Bengal, Assam, West Coast, Malabar, etc. where rice straw is the predominant feed for cattle.

(b) Medium rainfall areas having humid climate comprising of Central India.

(c) Dry weather areas comprising of Northern India, Punjab, U.P., etc.

(d) Hilly weather areas like Himachal Pradesh, Coorg, Ooty, etc.

44. There should be one or two Central Research Institutes to co-ordinate the efforts of the Regional Centres which would concentrate on the problems peculiar to the regions in which they are situated. The Central Research Institutes should also work in close collaboration with the dairy farms run by the State Governments and the Military authorities.

45. The Committee are of the opinion that a portion of the expenses of these Institutes, could be met by attaching to each of them, a dairy farm, run on commercial lines. This would also, to some extent, help to augment the milk supply in the country. As far as possible, the distribution of milk thus produced should be through marketing organisations run on co-operative basis, such as the organisation supplying milk to Bombay from Anand.

Delegation of Powers

46. The Committee note that the Director of the Institute is saddled with certain routine administrative matters like signing of bills, payment orders, etc. The Committee feel that this should be avoided to a certain extent by authorising an Officer subordinate to him to attend to this work, upto a specified monetary limit. If necessary, the relevant Rules should be amended thus enabling the Director to devote more time and attention to real research work.

Economy in Staff

47. The special reorganisation unit set up by the Ministries of Finance and Home Affairs which went into the details of the organisation of the Institute has made the following recommendations :

(a) *Class I.*—The four posts of Heads of Division should be held by two officers on the special scale and two on the usual Class I scale. The post of Second Dairy Chemist should be converted into a Class II appointment.

(b) *Class II.*—The posts of Assistant Dairy Husbandry Officer and Dairy Engineer are not at present required to be filled and may be abolished.

(c) *Class III.*—The Central Office should be reorganised. A Veterinary Officer should be appointed and the number of Research/Technical Assistants reduced from 16 to 13.

(d) *Class IV.*—The strength of Class IV staff should be reduced from 166 to 149.

There is scope for reduction in the employment of daily labour. The matter requires a thorough and detailed examination on the spot by Officers of the Institute.

The Director of the Institute should be authorised to dispose of animals which are surplus to requirements by auction subject to certain conditions. This will reduce expenditure on feeding and also increase revenue from sale of animals.

48. The Committee think that if the above recommendations are implemented by Government, there will be a saving of Rs. 46,000 per annum without loss of efficiency.

M. ANANTHASAYANAM AYYANGAR,

CHAIRMAN,
ESTIMATES COMMITTEE.

NEW DELHI,
The 22nd June, 1954.

APPENDIX I

Statement showing the summary of the principal conclusions/recommendations of the Estimates Committee.

Serial No.	Reference to Para. No. in the Report	Summary of conclusions/recommendations
		CATTLE-*cum*-DAIRY FARM, KARNAL
1	10	The reasons given for closing down the Jabalpore Farm are not very convincing. Besides the financial loss involved in closing this Farm, a very useful line of experiment in cross-breeding of cattle has also ceased. Greater care should be exercised in future before embarking upon such schemes.
2	11	The transfer of the Sahiwal breed of cattle from Delhi to Karnal like the transfer of the Sindhi breed from Jabalpore, was ill-advised.
3	12	The Sindhi, Tharparkar and Sahiwal breeds of cattle should be dispersed over various centres so that they may be put to greater use. In keeping them all in one locality there is a potential danger that in the event of an epidemic, they may all be destroyed by disease.
4	13	Such of the Sahiwal breed of cattle as can be transferred from Karnal to Delhi should be brought over and maintained in the Indian Agricultural Research Institute. The possibility of transferring the rest to State Farms for breeding purposes should also be examined. The corresponding staff should also be transferred from Karnal to Delhi.
5	14	With the transfer of the Sahiwal breed of cattle from Karnal to Delhi, the milk yielded by them could be made available at a reduced rate of Rs. 17/- per maund.
6	16	The Karnal Farm should continue to specialise in the Tharparkar breed of cattle. Research work should be undertaken by this Farm in respect of the Sindhi breed also. The necessary scientific advice should be made available to the Farm by the Geneticists of the I. A. R. I., New Delhi.
7	17	Research on cattle-breeding on scientific lines should be undertaken in a larger number of Institutes distributed over various centres. Research work in the various branches of dairy economy could also be carried on with a view to improve the quality of milk products.
8	19	The Committee regret to note that more than five years should have been taken for the completion of three tube-wells in the Karnal Farm, for which a sum of Rs. 1,70,000/- was sanctioned in 1948, and especially, when the land was lying fallow and water was badly required for the cultivation of fodder, thereby making it necessary for the Farm either to purchase fodder from the market or to curtail the cattle population.

Serial No.	Reference to Para. No. in the Report	Summary of conclusions/recommendations
9	20	Proper attention has not been paid to the utilisation of the land to the best advantage of the Farm. Normally, unproductive and inexpensive land is utilised for paddock purposes while the Farm has used 12 1/2 acres of fertile land for this purpose. The maximum utility of land should be the guiding policy of land utilisation. Greater attention should be paid to this aspect.
10	21	A Buffalo-breeding farm and an experimental station may be attached to the Karnal Farm.
11	22	The Central Government may also contribute to some extent towards the maintenance and development of the Hissar Farm which is now run wholly by the State Government and where the Hariana breed is being reared.
12	23	Proper cadres of Technical Officers in the various Institutes and Dairy Farms under the Central and State Governments with well defined channels of promotion should be constituted early.
		INDIAN DAIRY RESEARCH INSTITUTE, BANGALORE
13	36	Attention of the State Governments should be drawn to carry the fruits of the research work to the villages.
		Research workers should pay more attention to the practical problems of the trade, and research should be more of an applied nature. Close contact should also be maintained with the trade.
		An achievement audit should be conducted periodically, say every three years, with a view to assessing the practical utility to which the results of the research have been put.
14	37	Difficulties faced by the Institute, like the delays in the supply of laboratory equipment, will interfere with the efficient working of the Institute. Research work in the Institute should not be made to suffer or languish by slackness and red tape on the part of Government.
15	39	The loss in receipts of the Institute should be made up by other activities. This should be possible, to some extent, if the full capacity of the plant for the purpose of processing milk is utilised by making arrangements for getting the milk produced around the Institute, through co-operative societies, and processing it at the Institute.
16	41	The reasons given for transferring the Institute from Bangalore to some other place are not fully convincing and the Committee consider it inadvisable to shift the Institute from Bangalore.
		The area of 448 acres surrendered by the Institute to the Military authorities should be restored to it. The Mysore Government should also be approached for leasing out some land for the Institute in its immediate vicinity or within a radius of 10 to 15 miles around.
17	42	The number of students undergoing training in the various courses should be increased to at least 150 per year and all necessary additional accommodation, furniture, laboratory equipment etc. should be provided. Even if it is necessary to transfer the cattle-breeding activities of the Institute to some other place, training in dairy farming can be given to students at the Institute.

Serial No.	Reference to Para. No. in the Report	Summary of conclusions/recommendations
		Even if a Dairy Institute with provision for Dairy Science degree courses is established somewhere near Delhi, as is being considered, the Institute at Bangalore should cater to the requirements of the Southern Districts in such courses as are now being conducted, with such modifications as may be necessitated by the restricted resources of land etc.
18	43	Research work in cattle breeding and dairying should be undertaken all over the country. Regional Research Institutes, like the Bangalore Institute, should be opened and for this purpose the country may be divided into four regions *viz.*, heavy rainfall areas, medium rainfall areas, dry weather areas and hilly weather areas.
19	44	There should be one or two Central Research Institutes to coordinate the work of the Regional Centres. The Central Institutes should also work in close collaboration with dairy farms run by the State Governments and by the Military authorities.
20	45	A portion of the expenses of the Research Institutes could be met by attaching to each of them, a dairy farm run on commercial lines. The distribution of milk produced by these farms should be through marketing organisations run on co-operative basis, such as the organisation supplying milk to Bombay from Anand.
21	46	The Director of the Institute should be relieved of some of his routine administrative work by authorising an Officer subordinate to him to attend to this work upto a specified monetary limit, thus enabling the Director to devote more time and attention to real research work.
22	47	The following recommendations made by the Special Reorganisation Unit set up by the Ministries of Finance and Home Affairs should be implemented :— (*a*) *Class I* : The four posts of Heads of Division should be held by two Officers on the special scale and two on the usual Class I scale. The post of Second Dairy Chemist should be converted into a Class II appointment. (*b*) *Class II* : The posts of Assistant Dairy Husbandry Officer and Dairy Engineer are not at present required to be filled and may be abolished. (*c*) *Class III* : The Central Office should be reorganised. A Veterinary Officer should be appointed and the number of Research/Technical Assistants reduced from 16 to 13. (*d*) *Class IV* : The strength of Class IV staff should be reduced from 166 to 149. There is scope for reduction in the employment of daily labour. The matter required a thorough and detailed examination on the spot by Officers of the Institute. The Director of the Institute should be authorised to dispose of animals which are surplus to requirements by auction subject to certain conditions. This will reduce expenditure on feeding and also increase revenue from sale of animals. (*Saving* : *Rs.* 46,000 *per annum*)

APPENDIX II

(*vide* para 7)

CATTLE-*CUM*-DAIRY FARM, KARNAL

Strength of Class III and IV Staff

CLASS III

1 Farm Engineer
1 Head Clerk
1 Cashier
1 Junior Scientific Assistant
2 Technical Assistants
5 Supervisors
1 Steno-typist
3 Clerks
1 Typist
1 Junior Mechanic
½ Fitter
1 Engine Driver
1 Truck Driver
1 Mechanic Driver (Dairy Plant)
1 Tractor Attendant
2 Fieldmen.

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CLASS IV

2 Tractor Drivers
2 Recorders (Cattle and Milk)
1 Store Keeper
1 Store Attendant
2 Head Jamadars
3 Jamadars
1 Compounder
1 Boilerman
1 Blacksmith
1 Carpenter
1 Truck Attendant
1 Daftri
2 Peons
1 Workshop Hand
3 Pumpmen
8 Chowkidars.

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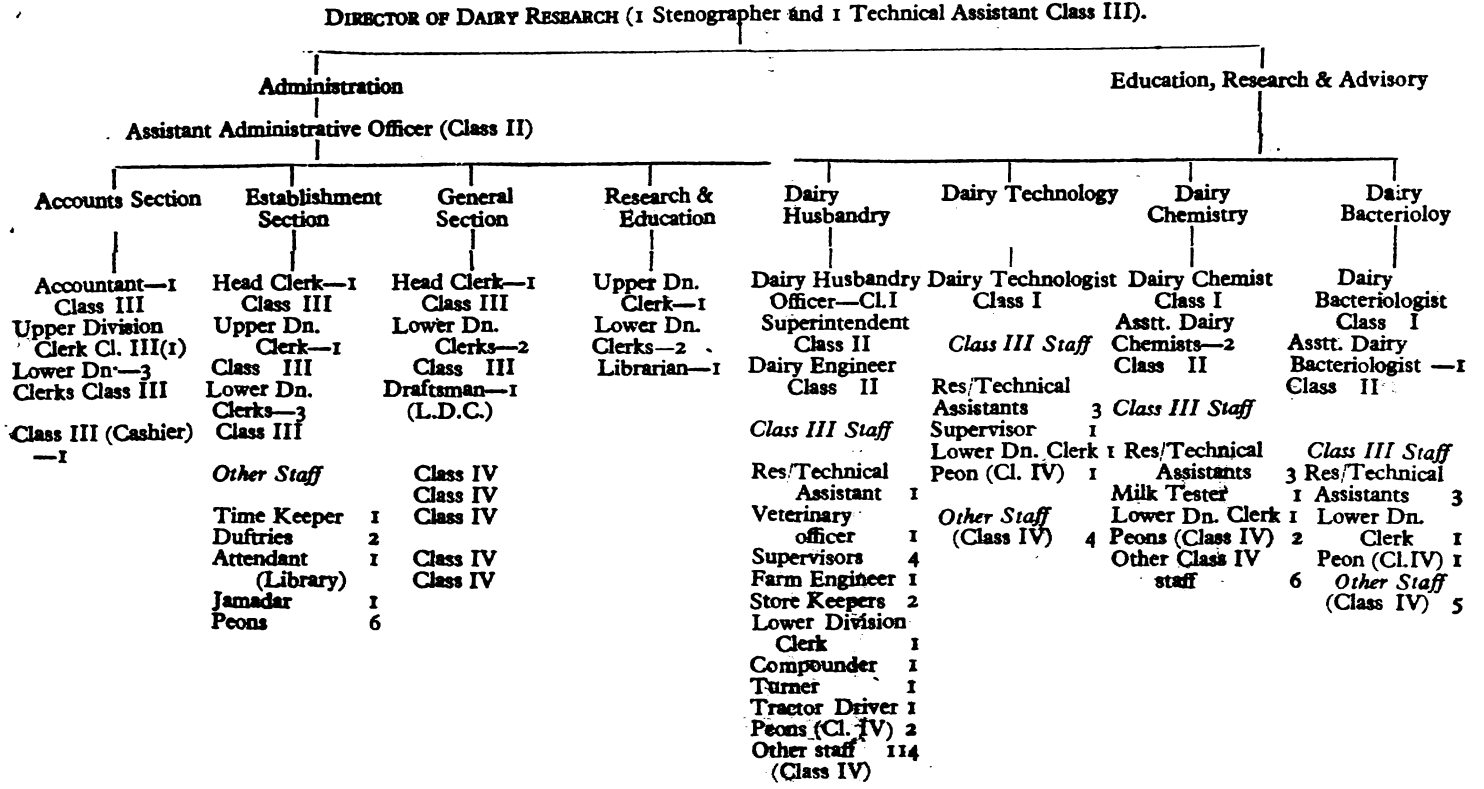
APPENDIX III

(*Vide* para. 34)

INDIAN DAIRY RESEARCH INSTITUTE, BANGALORE



APPENDIX IV

(*Vide* para. 35)

The subjects in which research was carried on in 1952-53 in the various Sections of the Indian Dairy Research Institute, Bangalore, are as follows :—

(1) Dairy Bacteriology Section :

Studies on Microflora of milk; sanitization of dairy utensils, keeping quality of raw and heat-treated milks, bacterial synthesis of growth-promoting factors in dairy products; preparation of desiccated cultures of starter organisms; production of flavour-forming compounds in milk products; microbiological deterioration of Indian butter; bovine mastitis, *ect.*

(2) Dairy Technology Section :

Investigations on the handling of market milk; studies on the utilisation of surplus milk ; standardization of the method of preparation of *khoa*; effect of storage of heat processed milk on quality of *khoa*; composition of *khoa*; standardization of the method of manufacture of *chhana*, studies on the improved methods of ghee manufacture and the utilisation of dairy by-products, *etc.*

(3) Dairy Husbandry Section :

The comparative effect of feeding cottonseed and its cake on milk and butter fat production in cow and buffaloes ; a new system of feeding milch cattle on green fodders to economise the requirements of concentrate feeds and the cost of milk production, *etc.*

(4) Dairy Chemistry :

The composition and nutritive value of indigenous milk products ; characteristics of ghee from animals fed by different types of oil cakes, keeping quality of ghee from shark liver oil fed animals; storage property of cow colostral fat, determination of Vitamin B Complex in milk and various other technical subjects.

APPENDIX V

(*Vide* para. 35)

PROPOSED TECHNICAL PROGRAMME OF RESEARCH WORK IN 1954-55 AT THE INDIAN DAIRY RESEARCH INSTITUTE, BANGALORE.

(a) DAIRY BACTERIOLOGY SECTION :

About 6 subjects mainly of a technical nature are proposed to be undertaken for research including tests for determining the keeping quality of raw and heat-treated milk.

(b) DAIRY CHEMISTRY SECTION :

10 items of research are proposed including the one on the stability of synthetic Vitamin A in dairy products.

(c) DAIRY HUSBANDRY SECTION :

7 subjects for research in this Section have been indicated including the continuanct of research on a new system of feeding cattle on green fodders to economise the requiremeny of concentrate feeds and the cost of milk production, and investigations on the quantity and quality of the milk from different quarters of the udder.

(d) DAIRY TECHNOLOGY SECTION :

The subjects proposed for research work in this Section are studies on the improved methods of ghee manufacture; on the utilisation of dairy by-products and recovery of lactose from channa-whey.

APPENDIX VI

(*Vide* para. 35)

The main subjects on which the research work was carried out at the Indian Dairy Research Institute, Bangalore during the last five years are as under :—

(1) Methods of sanitising dairy utensils;

(2) Bacteriological quality of market milk in India and methods of producing clean milk;

(3) Processing of raw milk to increase its keeping quality ;

(4) Study of the microflora in milk and their effect on the spoilage of milk and milk products;

(5) Standardising methods of testing the bacteriological quality of milk under Indian conditions;

(6) Methods of chemical sterilisation of milk and the effect of hydrogen peroxide on its keeping quality;

(7) Rapid determination of the fat content in milk;

(8) Determination of the Solids-not-fat content in milk by using a standard formula;

(9) Correction factors for lactometer readings under Indian conditions in the determination of the Specific gravity of milk;

(10) Determination of freezing points of Indian milk;

(11) Chemical composition of milk of different breeds and species of animals with a view to enforcing analytical standards;

(12) Enzymes in milk.

(13) Preparation of vegetable rennet as an alternative to animal rennet for the preparation of soft and hard cheeses;

(14) Search for a suitable vegetable colour for the colourisation of vanaspati;

(15) The use of sesame oil in Vanaspati as a method of detecting the latter when used as an adulterant in ghee ;

(16) Nutritive value of milk, as a supplement to a poor South Indian diet;

(17) Vitamin A content of milk, butter and ghee;

(18) Comparative feeding value of milk and milk products;

(19) The nutritive value of ghee as compared to vegetable oils and vanaspati;

(20) The search for a new growth promoting factor in ghee;

(21) Researches on ghee making and storage quality of ghee;

(22) Standardization of the methods of manufacture of ghee to increase its aroma and marketable quality;

(23) Study of grain structure of ghee ;

(24) High acidity in ghee and a simple method for its removal ;

(25) Standardization of the village method of casein manufacture ;

(26) Improvement in the quality of casein by alkali treatment of skim milk containing relatively high percentage of fat;

(27) Utilisation of surplus milk as *khoa*;

(28) The production of condensed milk under rural conditions;

(29) Preparation of lactose as a by-product in the milk industry;

(30) Investigations on the production of dry skim milk powder;

(31) Investigations on the long distance transport of milk;

(32) Breeding of pedigree cattle for higher milk yield;

(33) Feeding value of some cultivated fodders in the production of milk and the possibility of decreasing the use of concentrates;

(34) Experiments on fodder production;

(35) Feeding value of kulthi;

(36) Study of milk substitutes in the rearing of calves;

(37) Study on the use of milch animals on farm work;

(38) Fortification of milk and milk products with a synthetic vitamin A; and

(39) Use of anti-biotics in calf feeding.

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